

**ABSTRACT**

A copper- nickel-silicon quench substrate rapidly solidifies molten alloy into microcrystalline or amorphous strip. The substrate is composed of a thermally conducting alloy. It has a two-phase microstructure with copper rich regions surrounded by a  
5 discontinuous network of nickel silicide phases. The microstructure is substantially homogeneous. Casting of strip is accomplished with minimal surface degradation as a function of casting time. The quantity of material cast during each run is improved without the toxicity encountered with copper-beryllium substrates.